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Continuation of exchange with neighbors in later life: The importance of the neighborhood context

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Abstract
Relationships with neighbors are considered exchange relationships, in which the continuation of exchanges depends on balance in previous exchanges. Our study tested whether this is the case. An exchange relationship implies that neighbor relationships are isolated units. We expected, however, that neighborhood integration also affects the continuation of exchange among neighbors. Data were from a longitudinal study among 1,692 independently living Dutch adults of ages 55 to 85 years at baseline and their 7,415 relationships with proximate network members. At a four-year follow-up, both perceived balance and neighborhood integration at baseline increased the chance of instrumental support exchange occurring. We concluded that it is too limited to view relationships between neighbors as exchange relationships, as these relationships are embedded in larger communities, where such communities exist.

Relationships with network members living nearby are considered an important source of instrumental support, especially in later life (Wellman & Wortley, 1990; Wenger, 1990). Most tasks involved in instrumental support require face-to-face contact, which is accomplished more readily by neighbors (Litwak & Szelenyi, 1969). One might even argue that the potential for mutual help is an important basis of relationships between neighbors (Guest & Wierzbicki, 1999). Compared to relationships with family and friends, there is generally a lower level of affection or obligation in relationships with neighbors. Neighbors only share their place of residence and the common needs and interests that arise from living there. Relationships with neighbors therefore are considered typical exchange relationships (Mills & Clark, 1982).

In an exchange relationship, the exchange of support requires equality and comparability of benefits given and received, or, in terms of exchange theory: direct reciprocity. The continuation of exchanges depends on a recognizable balance in the support given and received. That is, if there is direct reciprocity in the exchange, neighbors are more likely to give or receive support in the future than if such balance is lacking. Mills and Clark (1982) distinguished exchange relationships from communal relationships, such as friendships, in which exchanges are driven by the partners' need for support and continuation of the relationship depends on mutual concern for the other's well-being. Plausible as it may be that neighbor relationships are exchange relationships, we know of hardly any research that relates direct reciprocity to the continuation of support exchanges

This study is based on data collected in the context of the "Living Arrangements and Social Networks of Older Adults" and "Longitudinal Aging Study Amsterdam" research programs. These programs are conducted at the Vrije Universiteit in Amsterdam and the Netherlands Interdisciplinary Demographic Institute in The Hague, and are supported by the Netherlands Program for Research on Ageing (NESTOR) and the Ministry of Health, Welfare, and Sports.

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among neighbors. The work of Clark (1981, 1984) and of Mills and Clark (1982) mostly does not focus on neighbors, whereas studies on neighboring rarely address the continuation of support over time. A study on the continuation of instrumental support in unbalanced relationships showed that neighbors do tend to opt out of nonreciprocal relationships (Klein Ikkink & Van Tilburg, 1998). We therefore take the following as our first hypothesis.

H1: *Lack of balance in exchanges of instrumental support among adults in later life and their neighbors leads to discontinuation of these exchanges.*

We focus on instrumental support first because that is the most typical of the neighbor role. Furthermore, other forms of support, such as emotional support, often are interwoven with other aspects of the relationship, such as doing things together or instrumental support. This entanglement makes it hard to determine what needs to be paid back and when it has been accomplished, not only for the researcher, but foremost for the people involved (Clark, 1981).

In this study we also wanted to introduce a second influence on the continuation of exchanges among neighbors. The distinction between exchange and communal relationships made by Mills and Clark (1982) suggests that the conditions for continuation are given with the neighbor role as such, and that the exchange character of the relationship is inherent to being neighbors. We expected that this was not the case, and that the continuation of support exchanges between neighbors also depends on the network and neighborhood context in which the relationship is embedded. In putting forward this context, we wanted to focus on the broader social circumstances that may have led to the emergence of neighboring as an exchange relationship.

As we will argue below, the reason that support exchanges with neighbors require direct reciprocity in order to continue is that neighbors in present-day neighborhoods often are isolated in the network and the neighborhood. This makes the exchange of support among neighbors an individualized activity. It involves only two neighbors, rather than a larger neighborhood community. This individualization of neighboring leads people to rely on direct reciprocity. According to exchange theory, direct reciprocity is typical of relationships where there is lack of confidence or likelihood that both partners get their share in due course because either may move or terminate the relationship for other reasons (Uehara, 1995). Although many types of reciprocity can exist, exchange theory most commonly distinguishes direct reciprocity from generalized reciprocity, which is made up of less recognizable returns (Uehara, 1990). Generalized reciprocity is typical of communities where there is a general commitment to helping out, such as families, neighborhood communities, or even welfare states (Ekeh, 1974). If people have confidence that they will get what they need if necessary, a direct return for favors is not needed. Indirect and postponed forms of reciprocity may occur, or returns may not occur at all. Such confidence may be lacking between individual neighbors because either may move or because the relationship is unstable. When neighbors are part of a neighborhood community, on the other hand, people can be sure that there will always be someone in the neighborhood to help out if needed, and direct returns are not necessary to maintain the relationship with individual neighbors. Our second hypothesis follows.

H2: *When the older adult is integrated more in the neighborhood, giving and/or receiving of instrumental support with neighbors is more likely to continue.*

The following paragraphs elaborate on the background of this hypothesis and on the aspects of neighborhood integration we wanted to investigate.

We derived our second hypothesis from the so-called "community question" (Wellman, 1979), an ongoing debate on the

alleged decline of local communities in urban society. At least since Wirth (1938) declared urbanism "a way of life," in which people in urbanized areas prefer to avoid each other in order to maintain privacy and security in a crowded environment, there has been debate on the detrimental effects of urbanization on local relationships. "Community lost" arguments have pointed to the disintegration of local communities due to increased residential mobility, which causes instability in local relationships. Rather than focus on relationships in the neighborhood, people have geographically dispersed networks and they exchange support mainly with nonlocal network members. According to "community saved" arguments, close local communities continue to exist in urban settings, in particular in lower-class neighborhoods where relatives and friends live nearby and where there is intense exchange of support between all people involved. Wellman (1979, 1988) showed that in metropolitan Toronto the most common type of community was "liberated": people have local ties, but these ties are of limited importance because people focus more on relationships outside the neighborhood for support and socializing. Moreover, Wellman argued that neighborhood or shared location could no longer be seen as an a priori context for community. In his view, communities are "personalized," consisting of individuals' personal networks. The members of these personal communities can be located anywhere, as their common denominator is not the neighborhood but their tie to the focal person, or anchor, in the network.

There is ample evidence in support of the view that most personal networks are geographically dispersed, and that this dispersion is strongest for people living in more urban settings (e.g., Beggs, Haines, & Hurlbert, 1996; Fischer, 1982; Thomése & Van Tilburg, 2000). However, this does not automatically imply that neighborhoods have lost all relevance as a context for the exchange of support. Some people do not specialize in ties outside the neighborhood, but instead have locally oriented networks (Guest & Wierzbicki, 1999). These differences in focus on neighborhood and extra-neighborhood ties are usually attributed to differences in individual resources for maintaining relationships outside the neighborhood. Several personal characteristics are interpreted as indicators of opportunities to engage in broader networks or, conversely, as constraints on socializing outside the neighborhood (Logan & Spitze, 1994). The resources studied most are income, paid employment, and health or age. Although lack of resources generally is associated with a larger number of neighborhood ties, results are contradictory (Campbell & Lee, 1992), and it often remains unclear whether the association applies to relationships in the neighborhood only, or to the personal network as a whole (Thomése & Van Tilburg, 2000).

A second explanation of why some people specialize in neighborhood ties focuses on different stakes people have in the neighborhood (Logan & Spitze, 1994). People whose networks are based more in the neighborhood feel more attached to it (Adams, 1992; Mesch & Manor, 1998). Stronger orientation to neighbors is also associated with longer residence (Campbell & Lee, 1992; Mesch & Manor, 1998; Phillipson, Bernard, Phillips, & Ogg, 1999; Wenger, 1993), home ownership (Logan & Spitze, 1994), and presence of close kin in the neighborhood (Campbell & Lee, 1992; Logan & Spitze, 1994; Phillipson et al., 1999; Wenger, 1993), as well as frequent church attendance (Greenbaum & Greenbaum, 1985). These findings show that people with locally oriented networks often are more integrated in the neighborhood in other respects as well. We use the term integration in a loose sense, summarizing a broad range of individual, social, and structural aspects of neighborhood attachment and social cohesion. Although the research literature shows little consistency in specific variables measured, the outcomes are surprisingly robust in that structural characteristics, social relationships, and social problems in neighborhoods are interrelated (Sampson, Morenoff, & Gannon-Rowley, 2002).

As we mentioned before, there is little research that specifically addresses the continuation of support among neighbors over time. On the basis of the previous findings on local orientation of networks, we assume that the neighbor relationships of older adults who are more integrated in the neighborhood are embedded more strongly in a neighborhood community. This in turn engenders trust that people get what they need, independent of a previous balance in support exchanged. Therefore, with stronger neighborhood integration, exchange is more likely to continue, whether it is balanced or not.

Design of the Study

Respondents

Face-to-face interviews were conducted in 1992 (T0) with 3,805 respondents in the Dutch Living Arrangements and Social Networks of Older Adults research program (Knipscheer, De Jong Gierveld, Van Tilburg, & Dykstra, 1995). This program uses a stratified random sample of men and women born between 1908 and 1937. The oldest respondents, especially the oldest men, are overrepresented in the sample. The sample was taken from the population registers of 11 municipalities: the city of Amsterdam (population 714,000) in the western part of the Netherlands, two cities in the south and east (populations less than 100,000), and eight rural communities (populations between 4,000 and 36,000) in the west, south, and east. The larger rural communities were collections of a number of small villages. This distribution can be taken to represent differences in religion and urbanization in the Netherlands. Of the 6,107 eligible persons in the sample, 2,302 (38%) were unwilling to participate due to a lack of interest or time; another 734 were ineligible because they died or were too ill or cognitively impaired to be interviewed.

In 1992–1993 and 1995–1996, follow-ups were carried out in the context of the "Longitudinal Aging Study Amsterdam" (LASA; Deeg, Beekman, Kriegsman, & Westendorp-De Serière, 1998). We used data from T0 and the second follow-up in 1995–1996 (T2). At T2, face-to-face interviews were conducted with 2,302 respondents (61% of the T0 respondents). Telephone interviews, which did not include questions on the network, with the respondent or a proxy were conducted with 204 persons (5%). Of the other T0 respondents who did not participate at T2, 767 (20% of 3,805) were deceased and 86 (2%) could not participate in the study because of severe physical or mental health problems. Furthermore, 396 (10%) refused to be reinterviewed, and 50 (1%) could not be contacted. Using multivariate logistic regression, respondents with and without longitudinal data available ($n = 2{,}302$ and $n = 1{,}503$, respectively) were compared with regard to sex, age, having a partner, sharing the household with children, educational level, income, the capacity to perform daily activities (ADL), cognitive functioning, having a chronic disease, and network size, all measured at T0. The respondents who remained in the study more often were female, younger, and more often had a larger network, a better education, a better ADL capacity, and better cognitive functioning ($p < 0.01$).

Of the 2,302 respondents at T2, 610 were excluded from the analyses for the following reasons: 135 respondents were mentally or physically unable to be interviewed with the full questionnaire (although they completed a short version of the questionnaire); 72 respondents were institutionalized; 170 respondents moved outside their neighborhood; for 23 respondents the networks were not delineated for various reasons; 15 respondents could not identify any network members or only identified their spouse as a network member at T0; and the networks of 195 respondents did not include proximate network members at T0.

We included 1,692 respondents in the analysis, 779 men and 913 women. For these respondents, the interval between T0 and T2 averaged 3.9 years ($SD = .2$) with a minimum of 3.2 and a maximum of 4.7 years. At T0, their age range was 54 to 84 years ($M = 67.8$; $SD = 8.3$); 462 respondents lived alone, 1,163 lived with a partner

(of whom 1,137 were married), 39 lived with children, and 28 lived in another kind of multiperson household. Between T0 and T2, 109 respondents became widowed, 1 divorced, and 4 got married; in addition, 16 respondents started a new partner relationship and the partner relationship of 12 respondents ended. One hundred and three respondents moved once and 3 respondents moved twice within their neighborhood.

Instruments

Personal network. The main objective was to identify the socially active relationships of the respondent in the core as well as the outer layers of the larger network (Van Tilburg, 1995). The procedure was adopted from Cochran, Larner, Riley, Gunnarson, and Henderson (1990). Network members were identified at T0 in seven domains of the network, in the following order: household members (including a spouse), children and their partners, other relatives, neighbors, colleagues from work (including voluntary work) or school, members of organizations (e.g., sports clubs, church, political parties), and others (e.g., friends and acquaintances). With respect to each of the domains, the question was posed: "Name the people (e.g., in your neighborhood) you have frequent contact with and who are also important to you." People could be identified only once, in the domain chosen by the respondent. Thus, a person who was first chosen as a relative, could not be also chosen as a neighbor, even if he or she lived next door. Only people above the age of 18 could be nominated. A limit of 80 was set on the number of network members to be named, but no one reached this limit.

Relationship characteristics. Information was gathered at T0 on the network members identified in all domains in regard to gender, the type of relationship, and frequency of contact. Contact frequency was asked in eight categories and rearranged in days per year. For the nine network members (or fewer, if fewer were identified) with the highest frequency of contact, five additional questions were posed. Traveling time was asked in hours and minutes and scored in minutes. We also asked whether the network members lived with a partner and whether they were employed. For perceived instrumental support exchanges two questions were asked of the respondent. The question on support received was "How often did _ help you in the past year with daily chores in and around the house, such as preparing meals, cleaning the house, transport, chores, filling in forms?" For support given, the question was reversed. Answers could be: never, rarely, sometimes, often. Within a side study including both older adults and their network members as respondents, two additional questions on advice and helping were asked, and scale analysis showed that there were strong correlations between the three variables (Klein Ikkink & Van Tilburg, 1998): Loevinger's $H \geq 0.55$; $0.56 \leq \rho \leq 0.65$, and correlations between older adults' reports and network member's reports were between .29 and .47, indicating the subjective nature of the measurements.

Respondent characteristics. Education was measured at T0 as the highest level completed and was scored in years. Respondents were asked at both waves if they had paid employment, either full time or part time. Respondents were asked the net monthly income of the household at T0. Twelve categories were presented ranging from €511 to €2,614 (about 500 to 2,558 U.S.$). The average income was €1,210 (about 1,184 U.S.$) per month.

Three health measures were included at both waves. Difficulties with activities of daily life (ADLs) were addressed by six questions that had five possible answers: not at all, only with help, with a great deal of difficulty, with some difficulty, without difficulty. The six items constituted hierarchically homogeneous scales at both waves (Loevinger's $H \geq 0.59$), which were reliably measured ($\rho \geq 0.83$). The scale ranges from 6 (numerous problems) to 30 (no problems). Cognitive functioning was

assessed with the Minimal Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975). The MMSE-score involves indications of recall, orientation, registration, attention, language, and construction. Scale scores range from 0 = poor to 30 = good, with Cronbach's $\alpha > 0.62$. The presence of chronic diseases was determined by asking the respondents whether they had any of the following seven diseases: chronic nonspecific lung disease, cardiac disease, peripheral arteriosclerosis, stroke, diabetes, arthritis, malignant neoplasms. Answers were coded as no or yes. In a comparison with information we obtained from our respondents' general practitioners, these self-reports of chronic diseases were found to be sufficiently accurate (Kriegsman, Penninx, Van Eijk, Boeke & Deeg, 1996). The presence (versus absence) of any disease is used in the analyses.

Respondents were asked whether they owned or rented their home at T0. Length of residence was assessed at T0 by asking when the respondents had moved to their current address. Their evaluation of the neighborhood was also asked at T0 with three questions: "Do you generally like living in this neighborhood?," "Have you ever been harmed in this neighborhood?," "During the day, do you feel safe to go shopping or to go for a walk in this neighborhood?" Answers could be no or yes. Church attendance was assessed at the first wave with the question: "Do you attend church services or meetings of your religious group, and, if so, how often?" Answers could be yearly or less, several times a year, monthly, several times a month, and weekly or more often.

Neighborhood characteristics. Following Netherlands Statistics (NCBS, 1989), we defined neighborhoods as spatial units that can be considered a whole on morphologic or social-economic grounds distinguishing them from other spatial units. Neighborhoods in the Netherlands have 1,500 inhabitants on average ($SD = 2{,}174$), and mostly are delimited by main roads, water, or parks. There were 128 NCBS-neighborhoods in the geographical areas of our sample at T0. On average, there were 13 respondents per neighborhood ($SD = 19$; range 1–109). All neighborhood characteristics were measured at T0.

The level of urbanization was measured in five ordinal classes, ranging from 1 = *not urban* (fewer than 500 addresses per square kilometer) to 5 = *highly urban* (more than 2,500 addresses per square kilometer). These data were derived from a database provided by Statistics Netherlands on the basis of the mean number of addresses per square kilometer within a circle with a radius of one kilometer (Den Dulk, Van de Stadt, & Vliegen, 1992). On average, the degree of urbanization was 3.3 ($SD = 1.6$; $N = 128$); outside Amsterdam it was 2.0 ($SD = 1.1$; $N = 65$). The same source provided data on the average net income level in the neighborhoods. Across the 128 neighborhoods, the average was €10,770 (about 10,000 U.S.$) yearly ($SD = 1{,}220$). We also obtained data on the residential mobility in the neighborhood from the participating municipalities. With this, we calculated the number of residents leaving the neighborhood per thousand inhabitants. The smaller municipalities did not dispose of the necessary data on the neighborhood level. We used municipal level data in these cases. This forced us to count only the people moving out of a municipality, resulting in an underrepresentation of movers. On average, the residential mobility was 46?. ($SD = 24$), with scores varying between 12? and 212?. Neighborhood variables with strongly skewed distributions were dichotomized around the mean.

Procedure

Identification of proximate network members at T0. Neighbors are generally identified as people living nearby, often without distinguishing neighbors as a role relationship from other proximate relationships, such as children or friends living nearby. We did not have an a priori reason to limit ourselves to the neighbors identified

by the respondent and not include for example acquaintances or cousins in the neighborhood. Therefore, we defined neighbors as network members living nearby, as described below. We also included relationship type (as identified by the respondent) in the analyses. Network members identified by the respondent as neighbors mostly are people living (almost) next door or opposite the respondent. We will call them *direct neighbors*. We use the term *neighbor* to refer to all proximate network members, including direct neighbors.

The 1,692 respondents identified 27,143 network members. Relationships with a partner ($n = 1{,}212$) and (other) household members ($n = 421$) were excluded, because we considered neighboring relationships to exist outside the household. Furthermore, relationships not among the nine with the highest contact frequency were excluded ($n = 11{,}920$). Of the remaining 13,590 relationships, those within 10 minutes travel distance were considered proximate network members ($n = 7{,}444$). Relatives and children comprised 41% of all proximate network members. There were 34% respondents without kin among their proximate network members.

Dependent variable. We determined continuation of exchange as the giving or receiving of instrumental support at T2. Household members ($n = 14$) and relationships for which the support variables were missing ($n = 15$) were excluded, resulting in 7,415 relationships. We assumed that no support was exchanged at T2 within relationships with a T0-network member not identified at T2 or not among the nine relationships with the highest contact frequency at T2.

Explanatory variables. The balance in exchange at T0 was determined on the basis of the difference between instrumental support given and received as reported by the respondent. If the difference was 0, the exchange was balanced (direct reciprocity). If the difference deviated from 0, the exchange was unbalanced. A third category was if there had been no exchange at all. We assumed that relationships in which no support is exchanged generally are less stable than relationships in which there is exchange, even if the exchange is unbalanced.

Neighborhood integration was operationalized at the individual, network, and neighborhood levels to capture a wide range of ways in which the respondent was connected to the neighborhood. At the individual level, home ownership and length of residence indicated an objective stake in the neighborhood. Three items on neighborhood evaluation indicated subjective attachment to the neighborhood. Frequency of church attendance gave an indication of the formal involvement in the neighborhood. At the network level, we used the local orientation of the network, indicated by the percentage of proximate network members from the total number of network members among the nine relationships with the highest contact frequency, excluding the partner and household members. Furthermore, we distinguished between neighbor networks with and without kin present. At the neighborhood level, we used several statistics to get an impression of the general cohesion in the neighborhood; level of urbanization and residential mobility in the neighborhood have been shown to affect local orientation of networks (Thomése & Van Tilburg, 2000).

Analyses. We applied multilevel regression analysis with relationships nested within respondents and networks. Relationships of the same respondent will usually be more alike than will relationships of different respondents. Applying ordinary regression analysis to this kind of data set would violate the assumption of independence of error terms (Hox & Kreft, 1994). One consequence would be that we would overestimate the number of degrees of freedom and, therefore, the significance of effects—leading to a number of spurious significances.

Table 1. *Support exchange within relationships with proximate network members at T0 by relationship type (row percentages)*

			Exchange						
	No exchange		No balance		Balance		Total exchange		Total
Child(-in-law)	456	22%	1,287	62%	330	16%	1,617	78%	2,073
Sibling(-in-law)	338	52%	244	37%	74	11%	318	48%	656
Other kin	144	44%	160	49%	23	7%	183	56%	327
Direct neighbor[a]	1,267	50%	1,029	41%	231	9%	1,260	50%	2,527
Friend	360	59%	203	33%	48	8%	251	41%	611
Other nonkin	841	69%	319	26%	61	5%	380	31%	1,221
Total	3,406	46%	3,242	44%	767	10%	4,009	54%	7,415

[a]Direct neighbors are relationships identified by the respondent as neighbors but not listed first as kin.

However, the number of degrees of freedom is not the only subject of concern. Using ordinary regression analysis, effects of respondents with many relationships would dominate the effects since those respondents have a relatively large number of representations on the lower, relationship, level.

The models were analyzed with MLn, a program for multilevel analysis (Rasbash & Woodhouse, 1995). We followed a stepwise procedure in all analyses. First, only the intercept was estimated. The interval between T0 and T2 was entered into the equation (step 1), followed by respondent characteristics at T0 (step 2), and the change in these characteristics between T0 and T2 (step 3), and relationships or network member characteristics (step 4). The support exchange at T0 was entered in step 5, followed by neighborhood integration on the respondent, network, and neighborhood level (steps 6–8).

The multilevel analysis leads to a regression equation that can be read as the product of an ordinary regression analysis. The fit of the models is indicated by the significance of the model change. Each equation is characterized by the -2 log likelihood (deviance). The difference between the deviance of the successive steps is χ^2 distributed with the number of added variables as degrees of freedom. Odds ratios within the final equation will be presented, together with the significance of the model improvement.

Results

We first give a general description of the most relevant variables, before turning to the test of the hypotheses. Table 1 shows the balance in exchanges at T0, broken down by relationship type. Overall, exchange took place with 54% of all proximate network members (44% no balance + 10% balance), predominantly children (78%). Among nonkin, there was exchange in 31% (other nonkin) to 50% (direct neighbors) of the relationships. The exchanges were balanced in only 10% of all relationships. Unbalanced exchange was the most common among children and other kin. At T2, there was exchange with 34% of all proximate network members (table not shown). If there was balanced exchange at T0, exchanges continued more often (54%) than when exchange was not balanced (46%). If there was no exchange at T0, there also was no exchange at T2 in 81% of the cases.

We also calculated correlation coefficients among the integration variables (table not shown). Most correlation coefficients were around or below .10 ($p < .001$). Due to the large sample size, these correlations were significant. There was a clustering of stronger correlations around the degree of urbanization. Stronger urbanization was associated with greater residential mobility (.19, $p < .001$), and a lower mean

income in the neighborhood (−.32, $p < .001$). Stronger urbanization was also associated with smaller neighbor networks (−.23, $p < .001$), fewer kin in the neighborhood (−.18, $p < .001$), fewer church visits (−.31, $p < .001$), and less home ownership (−.35, $p < .001$). A higher residential mobility in the neighborhood was associated with a lower mean income in the neighborhood (−.18, $p < .001$), smaller neighbor networks (−.16, $p < .001$), and fewer kin in the neighborhood (−.15, $p < .001$).

In Table 2 we summarize bivariate associations of the integration variables at T0 with exchange at T2 in the proximate relationships identified at T0. At the individual level, length of residence and liking the neighborhood at T0 contributed positively to exchange occurring at T2. Frequent church visits had a negative effect on exchange at T2. Having kin in the neighbor network was positively associated with continuation of support exchange. At the neighborhood level, exchanges continued more often in neighborhoods with low mobility than in neighborhoods with high mobility.

Tables 3 and 4 show the results of the logistic multilevel regression of support exchange at T2 in proximate relationships identified at T0. The fit of the model increased significantly after all steps. In step 1, time between interviews was entered. The longer the interval between T0 and T2, the less probable that there was exchange at T2 (per year 0.41 times lower). Most respondent characteristics were not significant at the 0.05 level (step 2). The more highly educated exchanged support more often at T2 than did the less educated. Respondents with a higher MMSE-score had more chance of support exchanges at T2 than those with lower scores. As can be seen in step 3, deterioration of the MMSE-score had a similar effect. Changes in network size affected the chance of support exchange at T2 as well. Each network member lost between T0 and T2 decreased by 1.01 times the chance of support exchange with a neighbor at T2. In step 4 we entered relationship and network member characteristics. The (continuation of) support exchange at T2 depended on relationship type. Compared to the reference category (other nonkin), exchange with children had a 13.46 times higher chance of continuing. For exchange with siblings and other kin, this chance was 2.70 and 2.66 times higher than in the reference category. Exchange with direct neighbors (i.e., those people identified by the respondents as neighbors) had a 2.25 times higher chance of continuing than exchange with other nonkin. For friends, this chance was 1.77 times higher than in the reference category. Beside relationship type, a higher contact frequency contributed to a higher chance of support exchange at T2.

In Step 5 we introduced balance at T0, the first explanatory variable. Compared to proximate relationships where no support was exchanged at T0, both unbalanced and balanced exchanges increased the chance of exchange occurring at T2. For unbalanced exchange, the chance was 2.35 times higher. Balanced exchanges had a 3.02 times higher chance of continuing. With the category of unbalanced exchange as reference category, balanced exchanges had a 1.29 times higher chance of continuing ($p < 0.05$). These results are in line with our first hypothesis.

In step 6 we entered integration variables at the individual level. The longer respondents had been living in their present home, the higher the chance of support exchange with proximate network members continuing. For each year spent in the home, the chance increased almost 1.01 times. Respondents who reported they liked living in their neighborhood had a 1.74 times higher chance of exchanging support at T2 than respondents who did not like living in their neighborhood. These results corroborate our second hypothesis. Frequency of church attendance had a negative effect on support continuing: Respondents who visited church less than monthly had a 1.21 times higher chance of exchange continuing than did respondents who visited church more often. We expected the opposite in our second hypothesis. Ownership of the house and two aspects of neighborhood evaluation did not significantly affect the exchange at T2.

Table 2. *Integration variables and continuation of exchange (bivariate logistic multilevel regression)*

	Exchange at T2			
	No	Yes		
	$n = 4{,}868$	$n = 2{,}547$	OR	Wald
Home owner			1.11	2.6
No	67%	33%		
Yes	65%	35%		
Length of residence (years)	19.8	20.8	1.005	5.2*
Likes living in neighborhood			1.63	7.9**
No	75%	25%		
Yes	65%	35%		
Ever been harmed in neighborhood			1.11	0.7
No	66%	34%		
Yes	63%	36%		
Feel safe during daytime			0.83	0.7
No	61%	39%		
Yes	66%	34%		
Frequency of church attendance			0.88	4.3*
Monthly or less	64%	36%		
Three times a month or more	67%	33%		
Percentage neighborhood relationships			1.04	0.3
67% or less	64%	34%		
More than 67%	65%	35%		
Kin in neighbor network			2.12	104.3***
No	77%	23%		
Yes	62%	38%		
Mean yearly income in neighborhood (× 1000€)	11.0	11.0	1.04	1.5
Neighborhood mobility			0.69	35.9***
38‰ or less	62%	38%		
More than 38‰	70%	30%		
Level of urbanization (1–5)	2.7	2.6	0.98	1.3

*$p < 0.05$.**$p < 0.01$. ***$p < 0.001$.

Although the entrance of the network characteristics (step 7) resulted in a significant model improvement, they were not significant in the final model. Finally, in step 8, we entered integration variables at the neighborhood level. In neighborhoods with a low residential mobility, the chance of support continuing was 21% higher than in neighborhoods with low residential mobility. The mean income level in the neighborhood had no effect and neither did the degree of urbanization.

Discussion

It is generally assumed that direct reciprocity lies at the basis of maintaining the exchange of instrumental support between proximate network members, or "neighbors" for short. The core of the neighbor

Table 3. *Logistic multilevel regression of exchange at T2: Model improvement*

	Step	−2LL	*df*	χ^2
0	0-Model	9811		
1	Time	9807	1	4.3*
2	Respondent characteristics at T0	9749	11	58.7***
3	Change in respondent characteristics	9715	7	33.5***
4	Relationship or network member characteristics (T0)	7512	8	2202.6***
5	Support exchange at T0	7071	2	441.5***
6	Neighborhood integration (Respondent characteristics, T0)	7018	6	53.0***
7	Neighborhood integration (Network characteristics, T0)	7003	2	15.1**
8	Neighborhood integration (Neighborhood characteristics, T0)	6966	3	36.5***

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

relationship is a mutual recognition of the need for having someone around who can help out when necessary. But this potential for support is sparingly used, and, unless there is more to the relationship than living close to each other, people generally are reluctant to be indebted to each other. By keeping a recognizable balance in giving and receiving, neighbors can safeguard future help without causing any obligations in the meantime. An implication of this reliance on direct reciprocity is that *un*balanced exchange between neighbors is not continued.

Our objective was to find out whether and why this is the case. We used data from a longitudinal study among Dutch adults in later life on their relationships with neighbors, in particular the perceived instrumental support exchanges. For each relationship, only two questions were asked, thereby limiting the content validity. Our first hypothesis was that lack of balance in the exchange of support would lead to discontinuation of these exchanges. This hypothesis was supported by the results of our analysis: Balanced exchange had a higher chance of continuation than did unbalanced exchange. Compared to relationships in which no exchange occurred, the odds for support exchange after four years were about three times as high for balanced exchange and about twice as high for unbalanced exchange. On the one hand, this means that the neighbor relationship can indeed be characterized as an exchange relationship (Mills & Clark, 1982). On the other hand, our analysis also revealed that unbalanced exchange does not automatically lead to discontinuation of the exchange. It is twice as probable that unbalanced exchange is continued than is later occurrence of exchange in a relationship where no support was exchanged at T0. Exchange occurred at T0 in about half of the relationships. Our data indicate that these were mainly relationships with a higher frequency of contact. Often, but not necessarily, this involved children living nearby. The exchange of support in the relationship between parents and adult children clearly follows its own rules, often based on delayed forms of reciprocity, as has been researched extensively by others (e.g., Silverstein, Conroy, Wang, Giarusso, & Bengtson, 2002). Many neighbors are not called on for help. People normally do not need support from all their relationships. This does not mean that the other neighbors are not important. The fact that there is a friendly relationship with neighbors can provide security and a sense of integration (Wenger, 1990). Also, exchanging instrumental support is not the only way in which neighbors help each other, as they also exchange emotional and other intangible forms of support. We did not include these other types of support in our study for theoretical reasons. Favors that can be isolated and counted more easily, both by the

researcher and the neighbors involved, are suited best for a test of exchange theory. One could argue that the problem of determining reciprocity is not a theoretical issue but reflects the reality of exchanges, as it is likely that reciprocity more often is assumed than actually ascertained in relationships. But the results indicate that, at least on a theoretical level, our reasoning was correct. Moreover, the distinction between communal and exchange relationships is based on the very assumption that in some relationships, such as neighbors, maintaining a recognizable balance is important for the continuation of the exchange (Clark, 1984). This assumption is supported by our outcomes.

Second, we expected that the neighborhood context would also affect the exchange of support between neighbors. Our hypothesis was partly supported by the data. Both at the individual level and

Table 4. *Logistic multilevel regression of exchange at T2: Parameter estimates (*N *respondents = 1,692;* N *relationships = 7,415)*

Step	*M*	OR	Wald
1 Time between T0 and T2 (3.2–4.7 years)	3.9	0.59	8.4**
2 Respondent characteristics at T0			
Sex (male, female)	54%	0.98	0.1
Age (54–84 years)	67.8	0.989	3.6†
Education (5–18 years)	8.9	1.035	5.6*
Partner relationship (no, yes)	72%	0.85	2.3
Co-residing with children (no, yes)	18%	0.81	3.0†
Employed (no, yes)	14%	0.84	1.3
Monthly income (0.5–2.6 × 1000€)	1.2	1.06	0.5
Network size (1–74)	16.0	0.995	0.9
ADL capacity (8–30)	28.5	0.99	0.5
MMSE-score (15–30)	27.6	1.05	5.2*
Chronic diseases (no, yes)	72%	1.05	0.2
3 Change in respondent characteristics			
Partner relationship	−6%	0.76	3.9*
Coresiding with children	−6%	0.88	0.7
Employed	−6%	0.88	0.5
Network size	−0.9	1.013	6.7**
ADL capacity	−1.1	1.00	0.0
MMSE score	−0.4	1.04	5.4*
Chronic diseases	12%	1.08	0.3
4 Relationship or network member characteristics at T0			
Sex (male, female)	56%	1.13	3.6†
Child (or in-law)	28%	13.46	407.5***
Sibling (or in-law)	9%	2.70	43.9***
Other kin	4%	2.66	29.3***
Direct neighbor	34%	2.25	47.1***
Friend	8%	1.77	13.5***
Other nonkin[a]	17%	1.00	
Living with partner (no, yes)	78%	1.08	1.0
Employed (no, yes)	40%	0.90	1.9
Contact frequency (days per year)	157.6	1.003	105.3***

Table 4. (*continued*)

Step	*M*	OR	Wald
5 Support exchange at T0			
Balance in support exchange	10%	3.02	103.0***
No balance in support exchange	44%	2.35	144.3***
No exchange[b]	46%		
6 Neighborhood integration at T0 (respondent characteristics)			
Home owner (no, yes)	45%	1.14	2.2
Years living in home (0–82)	19.9	1.007	7.6**
Likes living in neighborhood (no, yes)	96%	1.74	6.9**
Ever been harmed in neighborhood (no, yes)	8%	1.25	2.5
Feel safe during daytime (no, yes)	97%	0.72	1.6
Frequency of church attendance (monthly or less, more often)	41%	0.83	5.3*
7 Neighborhood integration at T0 (network characteristics)			
Percentage of neighborhood relationships (low, high)	33%	0.92	1.2
Kin among neighbors (no, yes)	66%	0.87	2.1
8 Neighborhood integration at T0 (neighborhood characteristics)			
Mean yearly income in neighborhood (9–17 × 1000€)	11.0	0.96	0.9
Neighborhood mobility (low, high)	48%	0.79	8.8**
Level of urbanization (1–5)	2.8	1.04	1.6

$^{\dagger}p < 0.10$. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.
[a]Other nonkin is the reference category for relationship type.
[b]No exchange is the reference category for support exchange at T0.

at neighborhood level, integration variables at T0 contributed significantly to explaining the continuation of support exchange, in the direction we expected: Higher integration favors continuation of the exchange. At the individual level, continuation of exchange was the most likely in relationships of people who had been living in the neighborhood longer and those who liked their neighborhood. At the neighborhood level, continuation of exchange was the most likely in neighborhoods with low residential mobility. Individual feelings of safety in the neighborhood and network characteristics—local orientation of the network and presence of kin in the neighborhood – did not explain the continuation of support. Neither did the level of urbanization nor the mean income in the neighborhood. Since there were no bivariate associations of urbanization and income with support at T2 either, we conclude that, of the neighborhood characteristics we included in the analysis, only residential mobility had an effect. This does not mean that other neighborhood characteristics are irrelevant. First, there is a clustering of integration characteristics around the level of urbanization, which makes it difficult to identify variables that can and should be included in the analysis. Second, the Dutch situation may have led to underestimation of income effects. Although there are distinct differences in income between neighborhoods, these differences are leveled off because the Dutch welfare state reduces income inequality to a great extent.

The absence of any effects of network characteristics is remarkable. Logan and Spitze (1994) stressed the importance of close kin living nearby for social interaction in the neighborhood. Our results may differ because we studied different outcomes. Logan and Spitze focused on the frequency

of visiting and phoning and on the help received, all three measured at network level. Our study was aimed at the continuation of exchanges over time, which is a more specific characteristic of specific relationships in the neighbor network. The effect of family neighbors in neighborhood interaction that Logan and Spitze found may be more relevant to explaining the existence of interaction than it is to explaining continuity in a given situation. The role of close kin is already accounted for in our study in the situation at T0, and in the direct effect of relationship type on exchange continuing.

The direct effect of relationship type on the continuation of support is relevant to our operationalization of neighbors as well. We included all proximate network members in our analyses, also friends and kin living nearby. One could argue that the notion of neighbors as an exchange relationship does not pertain to other proximate role relationships, such as friends or kin, although the work of Clark (1981, 1984) and of Mills and Clark (1982) makes no reference to the issue. On the other hand, we put forward that individualization of proximate relationships has led to an increased focus on direct exchange. This applies to all proximate relationships. We therefore included all proximate relationships, while controlling for relationship type. The effect of relationship type does show that the strongest role relationships (children, neighbors) are most stable over time, compared to the categories that are more individually defined (other kin, friends, and other nonkin).

The mechanisms in neighborhood integration that underlie the existence of neighborhood interaction do not automatically apply to explaining continuity in the neighbor network. This is confirmed by the fact that local orientation of the network had no effect on the continuity of exchange, even though most of the previous research we found showed a central role of local orientation of networks in neighborhood integration. The mechanism we put forward was that neighborhood interaction increases with the stake people have in their neighborhood: Investments in the neighborhood favor interactions with neighbors, and vice versa. Our findings do support this assumption, but only in a very general sense. The more global indicators of neighborhood attachment—general liking and length of residence—did explain continuity of exchange as we expected. But the more specific indicators, such as network characteristics, did not have an effect. Frequency of church attendance even had an opposite effect from what we expected. Possibly, frequent church visitors exchange more support within their church community than with neighbors. There may be overlap between the proximate network and the church community of frequent church visitors, but this need not be the case as churches are not always located in the neighborhood where people live.

The ambivalent effect of neighborhood integration on continuation of exchange could be due to the absence of a theoretically more elaborated concept of neighborhood integration. We used a variety of indicators, which on the whole had low intercorrelations. But there also is a theoretical explanation. Apparently, people's social ties as such are not important to maintaining exchange among neighbors, but rather a more general sense of belonging and continuity that makes neighbors exchange support on a lasting basis (Thompson & Krause, 1998). This is in line with findings from a recent review of research on neighborhood effects and adolescent problem behaviors: Strong social ties may not be as critical for child well-being and general safety as the shared expectation that neighbors will intervene on behalf of the neighborhood (Sampson et al., 2002). Knowing that the neighborhood will help out is what matters. It would suggest a system of generalized reciprocity among neighbors. Stability plays a crucial role in this system, as expressed in the effects of length of residence and neighborhood mobility. If this is correct, relationship duration with neighbors should also predict continuation of exchange, as would more accurate measures of involve-

ment in neighborhood institutions (e.g., neighborhood church, local clubs).

Finally, we note that very few respondent characteristics had an effect on the continuation of support exchanges. This further supports our conclusion that, apart from the relationship characteristics and of course the balance in the exchange, the neighborhood context—and not individual resources—affects the continuation of exchanges among neighbors. It also implies that the outcomes of our study are not necessarily limited to later life. Most individual characteristics that can be associated with the special circumstances of older adults, including age, work situation, and physical health, are not relevant to our outcomes. Only cognitive problems lowered the chance of exchange continuing. This pertains to the oldest in our sample, and to a selection of cognitively impaired adults who still live independently. The length of residence is of course related to age; older people often have longer residence, both because they have been around longer and because the older generations are less prone to moving than younger cohorts. The wide age range in our sample—ages 55 to 89—may account for the minimal effects of age correlates on the continuation of exchange. It should also be noted that the specific situation of older adults has partly been accounted for in the T0 measures of networks and exchange. However, the focus of our study was not the makeup of the neighbor network in later life, or even the support exchanged with neighbors, but the *continuation* of support exchanges in relation to reciprocity. Research findings so far give no reason to assume that the exchange process differs between older and younger adults, with the exception of the frail elderly (Morgan, Schuster, & Butler, 1991). However, research among other age groups is needed to put this assumption to the test.

In conclusion, we want to stress that neighborhoods in modern urban society have not lost their relevance as a context for personal networks. Wellman's (1979) notion of the liberated community has found wide appeal as a metaphor for the disconnection of relationships and location: The person who maintains his or her relationships is what binds them, not a local community in which the relationships are embedded. As a consequence, relationships with neighbors are treated as isolated units, in which the neighborhood only appears as the source of needs and interests that neighbors have in common. This finds expression in the characterization of neighbor relationships as exchange relationships, governed by direct reciprocity. We conclude that such a view on neighboring is too limited. Living close together does not automatically imply an exchange relationship, and relationships with neighbors are embedded in larger neighborhood and family communities, where they exist. Not all neighbors are the same, and neither are all neighborhoods. This makes an important difference for the continuity of the exchange process.

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